REMARKS

Claims 6-10, 14 and 16-18 are regarded as allowable if properly rewritten. Claims 11-13 and 15 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Roman (U.S. Publication Number 2003/0152136), claims 1-4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Roman in view of Matsumoto (U.S. Patent Number 6,704,552), and claim 5 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Roman and Matsumoto in view of Popovic (U.S. Patent Number 6,804,307). Respectfully disagreeing with these rejections, reconsideration is requested by the applicants.

Regarding the rejection of claims 1-5, the Examiner asserts that "Roman discloses all the subject matter of the claimed invention with the exception of a first and second communication unit being assigned a first and second pilot sequence, respectively." Page 6, section 6 of the present office action. To fill this void, the Examiner cites Matsumoto col. 4 lines 4-22 and asserts that "it is known to provide wherein a first and second communication unit being assigned a first and second pilot sequence respectively." Page 7, section 6 of the present office action. Matsumoto col. 4 lines 4-22 reads as follows (emphasis added):

> In order to still further achieve the above objects, a receiver according to an embodiment of the present invention comprises a radio communication unit having an oscillator, that receives a signal and outputs a received signal, a plurality of first despreaders that despread the received signal with a first spread code **to output first pilot signals of a first channel which has been spread with the first spread code**, a second despreader that despreads the received signal with a second spread code **to output a second pilot signal of a second channel which has been spread with the second spread code**, and an automatic frequency controller that calculates a difference between an oscillating frequency of the oscillator and a frequency of the received signal for each of the first and second channels based on the first pilot signals and the second pilot signal to supply a frequency control signal to the oscillator, whereby the oscillating frequency of the oscillator is controlled so that the oscillating frequency is substantially equal to the frequency of the received signal.

In contrast, independent claim 1 recites (emphasis added) "assigning a first

communication unit a first pilot sequence, wherein **the first pilot sequence is selected from a group of pilot sequences constructed from a set of Generalized Chirp-Like (GCL) sequences**; and assigning a second communication unit **a second pilot sequence taken from the group of pilot sequences constructed from the set of GCL sequences**." As cited by the Examiner above, Matsumoto teaches transmitting two different pilot signals via two different **channels** using two different **spreading codes**. The applicants submit that this neither teaches nor suggests assigning a first and a second **communication unit** a first and a second pilot sequence, where each pilot sequence is taken from **a group of pilot sequences** that are **constructed from a set of GCL sequences**. Instead, Matsumoto teaches the use of spreading codes on different channels.

Regarding a group of pilot sequences being constructed from a set of GCL sequences, the Examiner relies on Roman [0041-0042 and 0053], which reads as follows (emphasis added):

> [0041] To solve the LO frequency drift problem, especially in situations where the transmitting LO is not particularly stable, the receiver uses **a two-chirp differential calculation** to resolve the frequency drift uncertainty. This is accomplished by configuring the transmitter to send a combination of conventional **up-chirping pulses** and **down-chirping pulses**.
>
> [0042] Each chirp produces a pulse at the output of the receiver's matched filter, separated in time by T o+D, where To is the known spacing between the **up-chirp and down-chirp signal**, and delta-f is proportional to D. Thus, **using the two types of chirp waveforms as a "pilot signal,"** the receiver can determine delta-f directly and thus synchronize the local LO to the transmitter LO, using conventional tuning devices or processes. Once synchronized, the receiving device can use the delta-f information to properly modulate its own data transmissions, allowing rapid sync at the other end....
>
> [0053] The detector 400 is composed of two matched filters. The internal one (close to the RF/analog) is matched to Code 1, and may be of a QPSK direct sequence type as (in the general sense) the direct sequence phase can take any of the values of 0, 90, 180, or 270 degrees. The Code 2 filter 410 **performs the chirp-like or polyphase matched filtering over the whole sequence length** of (N·M)/R seconds. Both matched filters run at the sampled rate of R, but Code 2 has an equivalent chip rate of R/N, therefore the taps from the shift register come every N positions.

However, the applicants submit that Roman, as cited by the Examiner above, also does

not teach or suggest the use of **a group of pilot sequences** that are **constructed from a set of GCL sequences**. Moreover, the applicants submit that Roman, as cited by the Examiner above, does not teach or suggest **assigning** even one communication unit a pilot sequence selected from a group of pilot sequences constructed from a set of GCL sequences.

Rather, the applicants respectfully submit that the Examiner is relying on considerable hindsight in combining and interpreting Roman and Matsumoto, as cited above, in rejecting claim 1. The Examiner appears to be asserting that the phrase in Roman, which reads "using the two types of chirp waveforms as a 'pilot signal,'" suggests a lot. Thus, the applicants do not see where Roman describes the use of GCL sequences, particularly for constructing a group of pilot sequences, and request that the Examiner explain in greater detail how Roman is asserted to teach or suggest constructing a group of pilot sequences from a set of GCL sequences. The applicants note that Popovic appears to provide some background information regarding GCL sequences **generally**, beginning at Popovic column 5, line 28 and continuing for a number of paragraphs. The applicants contrast this discussion in Popovic, regarding GCL sequences, to the cited portions of Roman. The applicants further note that Popovic is not cited in the rejection of claim 1, nor do the applicants see a motivation for combining Popovic with Roman and Matsumoto.

Regarding the rejection of claim 15, the Examiner relies on Roman [0041-0042 and 0053], quoted above. Claim 15 recites (emphasis added), "A communication unit comprising: pilot channel circuitry for transmitting or receiving a pilot channel sequence, wherein the pilot channel sequence comprises a sequence **unique to the communication unit** and is **constructed from a GCL sequence**." First, the applicants do not see where Roman describes the use of GCL sequences, particularly for constructing a group of pilot sequences, and request that the Examiner explain in greater detail how Roman is asserted to teach or suggest constructing a group of pilot sequences from a set of GCL sequences. The applicants note that Popovic appears to provide some background information regarding GCL sequences **generally**, beginning at Popovic column 5, line 28 and continuing for a number of paragraphs. The applicants contrast this discussion in Popovic, regarding GCL sequences, to the cited portions of

Roman. The applicants further note that Popovic is not cited in the rejection of claim 15, nor do the applicants see a motivation for combining Popovic with Roman.

Second, the pilot channel sequence of claim 15 comprises a sequence **unique to the communication unit**. The applicants submit that Roman, as cited by the Examiner, does not teach or suggest that the "chirp waveforms" are unique to any communication unit, and request the Examiner to explain in greater detail how Roman is asserted to teach or suggest this portion of claim 1. Also, the applicants note that regarding the rejection of claims 1-5, the Examiner asserts that "Roman discloses all the subject matter of the claimed invention with the exception of a first and second communication unit being assigned a first and second pilot sequence, respectively." Page 6, section 6 of the present office action. If the Examiner agrees that Roman does not teach pilot sequence assignment to communication units, how does Roman teach or suggest that the "chirp waveforms" of Roman are unique to any communication unit.

Regarding the rejection of claim 11, the Examiner relies on Roman [0041-0042 and 0053], quoted above. Claim 11 recites (emphasis added), "receiving a pilot sequence as part of an over-the air transmission, wherein **the pilot sequence is constructed from a set of Generalized Chirp-Like (GCL) sequences.**" First, the applicants do not see where Roman describes the use of GCL sequences, particularly for constructing a group of pilot sequences, and request that the Examiner explain in greater detail how Roman is asserted to teach or suggest constructing a group of pilot sequences from a set of GCL sequences. The applicants note that Popovic appears to provide some background information regarding GCL sequences **generally**, beginning at Popovic column 5, line 28 and continuing for a number of paragraphs. The applicants contrast this discussion in Popovic, regarding GCL sequences, to the cited portions of Roman. The applicants further note that Popovic is not cited in the rejection of claim 11, nor do the applicants see a motivation for combining Popovic with Roman.

Since none of the references cited, either independently or in combination, teach all of the limitations of independent claims 1, 11 or 15, or therefore, all the limitations of their respective dependent claims, it is asserted that neither anticipation nor a prima facie case for obviousness has been shown. No remaining grounds for rejection or objection being given, the claims in their present form are asserted to be patentable

over the prior art of record and in condition for allowance. Therefore, allowance and issuance of this case is earnestly solicited.

The Examiner is invited to contact the undersigned, if such communication would advance the prosecution of the present application. Lastly, please charge any additional fees (including extension of time fees) or credit overpayment to Deposit Account No. **502117 – Motorola, Inc.**

Respectfully submitted,
X. Zhuang et al.

By: _____

Jeffrey K. Jacobs
Attorney for Applicant(s)
Registration No. 44,798
Phone No.: 847/576-5562
Fax No.: 847/576-3750